Youth

APRIL 15, 1962

MAN OF TOMORROW

YOU ARE THE LUCKY ONE

CHRISTIAN FAMILY IN ORBIT

When John Glenn came in from his morning's ride today, the Post Office Department in Washington announced that it had printed a commemorative four-cent stamp in his honor, but the chances are that America would have remembered the event anyway.

For it was the greatest American ride since Paul Revere, who didn't get a stamp 'til much later, and it was pure Americana from start to finish: part Hollywood spectacular, part circus, part county fair—three times around the world in living color and news from Heaven all the way.

They say that this sort of thing has been done somewhere before, but not like this. Gagarin and Titov of the Soviet Union went into orbit by themselves, but Glenn made a party of it and took the whole country along for the ride.

Politically the thing was important. In the free world the idea was getting around that America had lost its scientific lead to the Soviet Union, whereas it had merely lost temporarily its imagination and sense of timing.

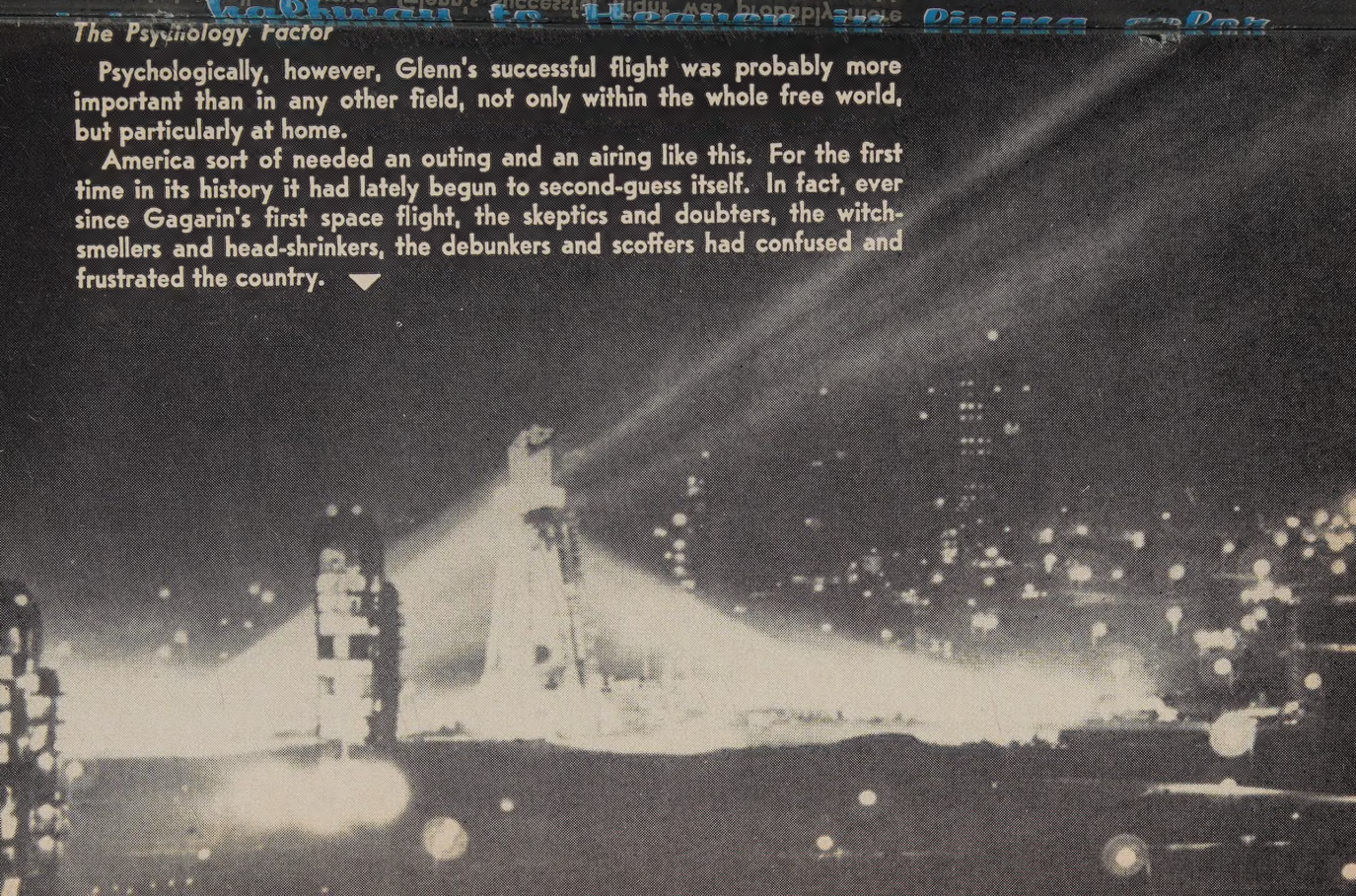
Scientifically, Glenn's flight was a great achievement, but it did not regain the initiative. What it did do was to demonstrate that we are back in the space race, and in the process it drew attention to the fact that the United States now has a competent and extremely flexible team of space experts drawn from the armed services, civilian industry, scientific and research organizations and the National Aeronautics and Space Administration.

Walkway to Heaven in living color

The Psychology Factor

Psychologically, however, Glenn's successful flight was probably more important than in any other field, not only within the whole free world, but particularly at home.

America sort of needed an outing and an airing like this. For the first time in its history it had lately begun to second-guess itself. In fact, ever since Gagarin's first space flight, the skeptics and doubters, the witch-smellers and head-shrinkers, the debunkers and scoffers had confused and frustrated the country.



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Editor:
Herman C. Ahrens, Jr.

Associate Editor:
Kay Lorans

Art Consultant:
Charles Newton

Editorial Address:
Room 306
1505 Race St.
Philadelphia 2, Pa.

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This in turn produced a lot of big splashy generalizations that somehow we had lost our way and had to find wholly new policies to deal with our problems at home and abroad.

Even the American character, it was said, had changed. The old faiths and the old silent types with their plain wives and their beer and baseball were out of fashion, and then along came these matter-of-fact, uncomplicated, almost old-fashioned characters who paid more attention to outer space than to inner tensions and made the country begin to think again.

This surely is what John Glenn did today. There was nothing fancy about him: just that flat Middle Western voice giving the facts, and saying he felt "real fine," and the view was "tremendous," and the coast of Africa was coming up on the left, and boy, the American shoreline sure looked wonderful.

This was the kind of talk you might hear from the nice man next door, which is about what most of these astronauts have turned out to be, even after they hit Harry Luce's jackpot, and the interesting thing about this is

It is not only John Glenn from New Concord, Ohio, and Alan Shepard from East Derry, N. H., and Virgil Grissom from Mitchell, Ind., who made this orbital flight possible. It was a team operation from Defense and N.A.S.A., from the McDonnell Aircraft Corporation and General Dynamics, from Bell Laboratories and a lot of other places, and it is remarkable how similar many of the leading characters seem to be.

They differ, of course, both in skills and disciplines, but a remarkable number of them are in the old athletic, moral, churchgoing mold—not self-righteous, priggish characters, but not wild sophisticated types, either.

The Other America

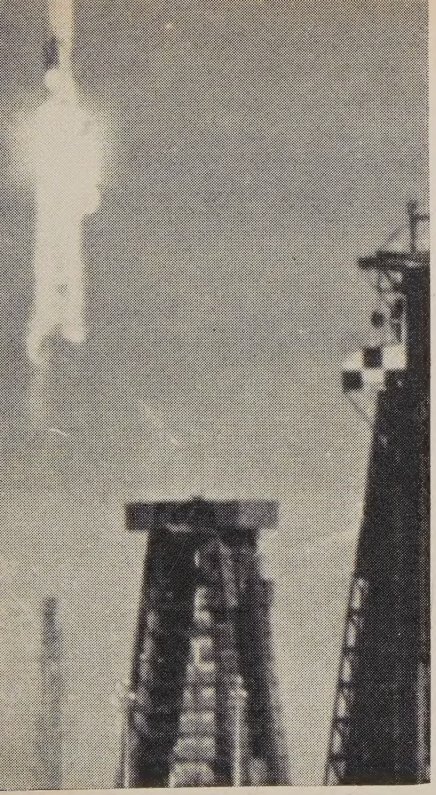
This team of men in the plate-glass, night-club atmosphere of Cape Canaveral is one of the most interesting aspects of this whole operation. The fancy, hard-drinking America is all around the base. For days it has been a jungle of inflammable blondes, Billy Minsky strip-teasers, press agents, reporters, technicians and a considerable number of other characters who celebrated John Glenn's achievement before it came off, and some of whom were well in orbit long before he left the launching pad.

It was largely this fringe aspect of Canaveral, where Glenn and the other astronauts have to live, that gave today's atmosphere such an air of carnival and hippodrome before the bird went aloft.

Maybe there is some symbolism here, however. For while this chromium-plated America exists, so does the other America of moderate, monogamous types. What Glenn did was simply to lift the nation above all the glitter and in so doing he raised its sights and also its confidence.

Maybe he never gave it a thought, but it's likely to be remembered for a while anyway, with or without that commemorative stamp.

—JAMES RESTON



Suddenly, David Glenn, 16, and his sister Lyn, 14, found themselves the most famous teenagers in America.

Their pictures were in *Life* Magazine and on the front page of every newspaper. They rode to Cape Canaveral with President Kennedy in his own plane. They went to the White House, paraded down Pennsylvania Avenue where hundreds of other rain-drenched teenagers held up signs greeting them, and became the first teenagers in history to be personally introduced to a joint session of Congress.

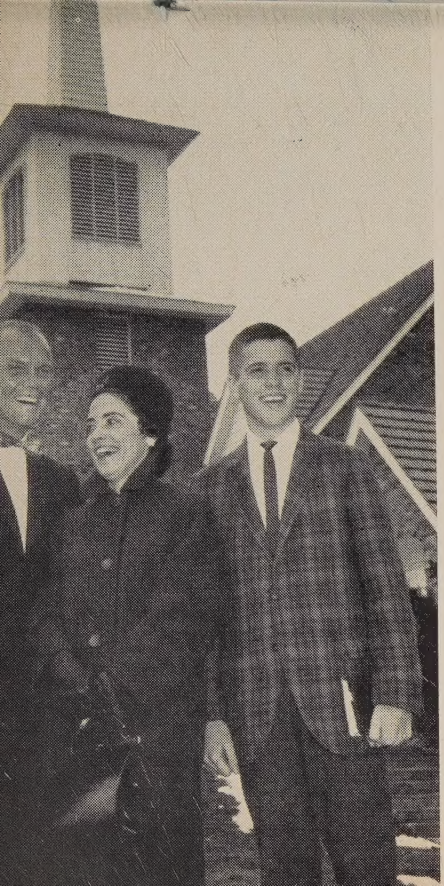
They rode in a New York ticker tape parade up Broadway. And, finally, they went back to their parents' and grandparents' hometown of New Concord, O., for the biggest and warmest greeting of all.

Anyone who would have forecast this as the fate of two American teens in 1962, would have been called crazy. But if a few years ago anyone had predicted what the father of these teenagers was going to do, we might have had an even sharper reaction than that.

Fame for Lt. Col. John H. Glenn, Jr., is understandable. He is the first American to voyage into outer space. He went around the world in 87 minutes and across the United States in seven minutes, 15 seconds at an altitude of 160 miles and a speed of 17,458 miles per hour. His courageous feat proves America's scientists right in their methodical, step-by-step approach to space travel.

But a veteran newspaperman standing on the Capitol steps put it this way: "Why all the family bit? By gosh, they even cheered his mother-in-law. They've got more welcome signs for his kids than they have for him!"

There's only one answer. It's been a family project from the beginning



ticker tape, and the introduction to a special session of Congress.

Col. Glenn was man alone in that space capsule. But John Glenn is not a man who stands alone in life. He has two things which are very much a part of him and of which he is a part—his family and his church. All their lives David and Lyn have helped their father be the kind of man he is just by being the kind of kids they are. And because of John Glenn's personal caliber, his flight into a strange universe was doubly significant for an admiring nation.

To understand how John Glenn's space adventure became a family project in the first place, you have to consider the kind of career in which he and his family have always been involved. As a Marine Corps pilot since the Second World War, he's been constantly doing a thrilling but dangerous job. Whether it was combat flying in World War II and Korea or test-piloting new and untried planes for the Marines in peace time, John Glenn has been subject to "slightly" more than an average man-in-the-street's daily risk.

Sometimes, sitting on the sidelines and rooting for a man like this can be tougher than going into combat yourself. John's wife, Annie, and David and Lyn know the trials of a spectator family well: how often difficult good-byes must be said; how often you wait and wonder about a mission's outcome. Learning to be an enthusiastic, yet patient audience produces a firm and rugged family who make excellent "back-up men" for an astronaut father.

When in 1957 both Russia and the United States had proved that a small, 12-pound instrumented capsule could go around the earth in empty space and not be destroyed, this advance meant that a man would be sent next.

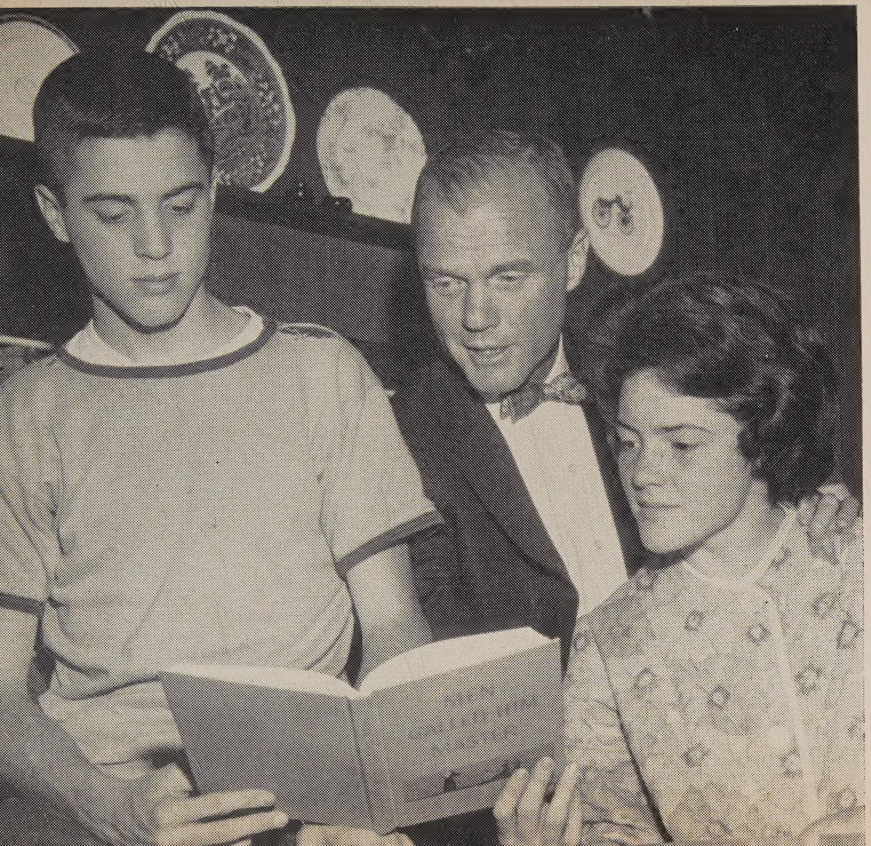
A call went out for space-flight volunteers, and John Glenn, who was

ranked as the Marine Corps' top test pilot, considered the possibilities. He talked it over with his family. And here's where David and Lyn played a crucial part. If they had been fearful, it would have been practically impossible for their father, who loved them, to go through with this dangerous mission.

Instead, they smiled. They encouraged him. They rejoiced when his application was accepted and when he was selected as one of the seven astronauts out of hundreds of fine candidates.

The family was solidly behind John Glenn. The long, rigorous training program meant he had to be away for days and weeks at a time. He usually tried to fly home for weekends and to take his family to church on Sunday. But for a closely-knit family, whose Dad is definitely at the head, the long separations between were hard.

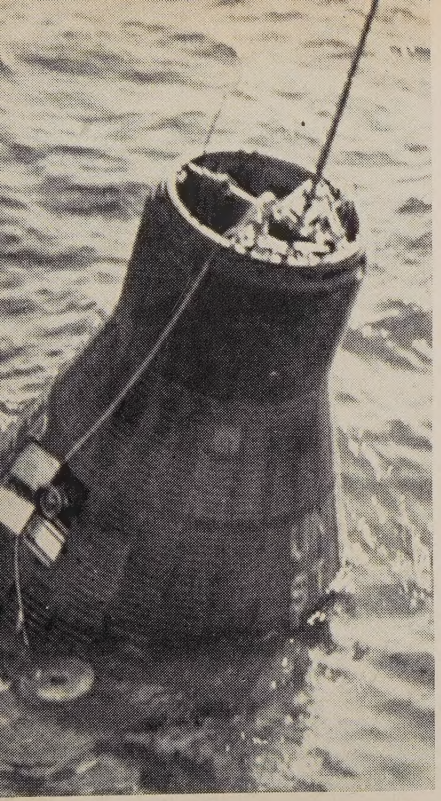
Then David and Lyn got the exciting news that their father had



nauts to make the first trips into space. They were disappointed when Cmdr. Alan Shepard was picked to make the first flight and their dad's job was to work as back-up man. When the second shot came with Capt. Virgil (Gus) Grissom going up, Col. Glenn was again in the back-up spot.

But when the try for three orbits finally came, it was Col. Glenn who was chosen. Countdown! Scrubbed! Countdown again. Scrubbed! An hour was set for the shot nine different times and always called off.

The Glenn's are a Christian family and the strain of these delays offered the kind of testing period in which faith counts. "Mine is not a fire-engine faith," Col. Glenn told a Senator who asked him. "It is not something I call on only in an emergency and then put God back in the woodwork . . . until another particularly stressful period. I think we should live all our days every



day as though that were going to be the last day. Now I fall so far short of this every day it is pitiful, but we come back and keep trying the next day, anyway."

This is the sort of faith that sustained the Glenn family when Dad was on the launching pad and they were gathered around the TV at home. Rev. Frank Erwin is the solid and effective minister of the Little Falls Presbyterian Church of which the Glenn's are members. A classmate of Mrs. Glenn's sister at Muskingum College, he is both family friend and counselor. And his simple presence in the Glenn home at all of these tense times was another big boost to their courage.

An hour before he took off, Col. Glenn was put through on his radio for a last telephone call to the family. He was going to try to bolster their spirits, but, instead, their cheerful, confident voices encouraged him. To help them say good-bye, Annie and John relied on a dialogue of farewell they had worked out many years before when John left her to go to the Pacific in World War II. "Well," John said, "I'm going down to the store and buy some chewing gum." Annie Glenn knew her cue. "Well," she replied, "don't take too long." Then she handed the phone to the kids and walked out of the room.

After a tense take-off, spattered with some of Lyn's nervous tears, the family followed their father around the world on charts he had brought them for the purpose. Then they waited again in strained silence during the long minutes that marked his re-entry into the atmosphere. There were moments of serious concern about his heat shield coming loose, but it had not and John Glenn came safely home.

family were projected after their return was tougher than the one in outer space. During the flight itself, 850 people, including 25 reporters and 50 photographers, camped on the lawn and streets in front of the Glenn home. And they waited there until the family finally emerged. Since the flight, fan mail has been delivered in sacks. Ninety-nine percent of it is positively sincere, but there are always the crackpots.

All this honor and fanfare is bound to be felt, and many have asked if it's turned the heads of Dave and Lyn Glenn. Perhaps the best answer was given on the Saturday evening following New Concord, Ohio's big reception for the Glenns. It had been the most exciting of days, ending when their father took the controls of the Air Force plane which flew them back to Washington.

They had scarcely landed when Dave went off with his friends to watch Yorktown High play Alexandria's George Mason High in basketball, and then- to the utter astonishment of Rev. Arthur Stanley, youth director at Little Falls Church—showed up at the teen canteen, ready to help in his usual tasks. The next morning he and Lyn were in Rev. Stanley's Sunday School class, as usual, and they sat with their parents at the service —as usual.

For vivacious Lyn, life goes back to junior high, to church choir, and to the junior high fellowship of which she's just been elected president. As an enthusiastic participant in fellowship activities, Lyn recently helped write a dialogue and speak on the meaning of "Responsible Freedom" at a Youth Sunday service of worship.

For more quiet and reserved Dave, it's back to Yorktown High, to the science studies which he finds exciting, and to a small role in the school play. "No More Than a Man in the Moon" places Dave in a contrasting

role to the one his father's just played. In the production, he's an earth-bound "Lieutenant" whose job is to unscramble the strange language of little green "moon men" who've just plopped down onto earth. Although it might be most appropriate for "Lieutenant" Glenn to wear a Marine uniform, it looks as though he'll be in the Air Force. That's the branch that has offered the right size uniform.

For the real-life Marine Lt. Colonel, life will still be very much of a family affair for John Glenn. It didn't take him long to spin out of the orbit of spotlight and space into his earth-solid responsibilities as a concerned and interested father.

He was thoroughly reminded of them one evening when he went to pick up his daughter, Lyn, from a teen-age party she was attending with some members of her junior high youth fellowship. Upon his arrival, he encountered a rowdy group of high school boys who had been refused admittance to the party.

One of the gang threw a beer can into the yard, and Col. Glenn, employing that voice of authority that Marine Corps colonels carry as standard equipment, told him to pick it up, and gave him ten seconds to do it. Words were exchanged, but the youth obeyed.

When he emerged from the house with his daughter a few minutes later, he overheard one of the gang suggesting that they go over to the church youth center. Sensing trouble, Col. Glenn drove Lyn home, then went directly to the church. There he found the young trouble-makers surrounding the pastor who had asked them to leave.

Glenn ordered the group to "get going." When they replied with rude,

A Return to Everyday Orbit

taunting remarks, he told them he would record the license number of their car and call police. As he went over to do so, one of the boys jumped in front of the license plate to hide it. Col. Glenn pushed him aside and another of the gang swung on him. The astronaut ducked the punch and quickly pinned the attacker's arms behind him. As help came from other adults who were chaperoning the teen center, John went inside and called police. Meanwhile, the boys ran away.

Before the public, Col. Glenn dismissed it as a minor incident, and an NASA spokesman said, "There was some boisterousness at the church and he happened to be there." But in private, John Glenn admits that "If there is anything I can do to help fight juvenile delinquency, I consider it a privilege to do so."

John, Annie, David and Lyn, Rev. Erwin and Rev. Stanley are all concerned about the problem of teen-age drinking in a suburban community such as theirs. They know that it involves an acute need for good teen-age recreation centers, a much closer watch by civil authorities over the sale of alcoholic beverages, and a real sense of family responsibility and unity that will make drinking an unnecessary outlet for teens.

It's obvious that life for the Glenns even on firm, old Mother Earth will not be free from concerns. But they will be concerns in which the whole family has a continuing interest. David and Lyn are proud of their dad as a significant member of the space team and as a star member of the family team. And this pride in their parents is matched by the reserve and dignity which they bear in both the public spotlight and their day-to-day lives wherever they go.

The whole Glenn story has been and will continue to be a wonderful chapter in America's history—the story of what happens when a Christian family goes into orbit.—GLENN D. EVERETT

The future has never been more exciting, more challenging, and more promising for young people who contemplate science as a career than it is today. As technical advancements have progressed, such measurements as the distances between cities are now calculated in hours rather than miles. Whole new areas offering opportunities almost analogous to those of the exploring pioneers of the days of Columbus and Ponce de Leon are found in Africa, the Antarctic, and South America. Their demands for economic development are such as to call upon all the imagination that any scientist or engineer can offer. The problems to be met in feeding the masses and the challenges in human relations as new nations struggle to raise standards of living are exciting offerings that match anything in the history of man.

LOOK TO YOUR FUTURE IN SCIENCE

In short, the knowledge of science must be a part of the education of every man. Needless to say, as new ideas pour out of inventors' minds to be developed by engineering groups, the demand will continue to rise for technically trained people to describe, advertise, and market these products. In fact, a good percentage of those holding degrees in engineering at the present time are required to sell and service many items today.

In my work as director of a science museum, one of my major objectives is the stimulation and encouragement of young people to elect science or engineering as a life work.

In order to give a reasonable opportunity for young people to consider these two facinating career possibilities, let's ask some pertinent questions.

1. What changes will a technical advance such as Lieut. Colonel John Glenn's triple orbit of the earth mean in the life of the average person ten years from now?

Certainly, the successful launching of Lieut. Colonel Glenn into orbit is merely the forerunner of many such launchings. It also means that with every success the scientists and technicians in this field of endeavor become more proficient in this very complicated technique. I sincerely believe that before the year 1972 arrives men will have reached the moon, landed upon it, and returned to tell about it. This in itself, while an achievement of great technical satisfaction, will also mean the confirmation or the destruction of certain theories that scientists hold regarding the properties of space and the moon itself. Confirmation merely means that we are on the right track and developments will proceed accordingly. If the theories are rendered false by the new evidence uncovered, it means a new approach must be found and research started anew.

Most of you will remember that Tiros satellites have been used to photograph the cloud cover of the earth which in turn has given us invaluable information regarding long range weather forecasting.

Envision if you will the marvelous amount of data that would be available if there could be a dozen Tiros satellites circulating the earth at once and funneling their information into a common world weather center.

Along with the meteorological possibilities is the fact that satellites can be used for communications. The Project Telstar is one in which messages will be sent to the satellite to be sent back to some remote station. This will enable communication via telephone to be expanded to a greater degree than transatlantic cables presently permit. A series of Echo satellites also means that television and radio communication between nations may be greatly enhanced.

2. What kind of jobs will be open for us tomorrow?

This question is almost impossible to answer in a strictly definitive sense. It is true that the techniques which may be required ten years from today are techniques we cannot even possibly visualize today. But the basic principles of science on which these new jobs will be based are the same as those we know today. New concepts will be developed and further refinements may be made in some existing principles; but we will still have the same laws in the sciences and the same algebraic rules to govern most of our thinking.

The field of electronics seems to have unlimited horizons. The same is true in all fields of physics and in chemistry, mathematics, and biology. These are the basic disciplines in which science is usually divided, but the International Geophysical Year of 1957-58 focused attention on the whole spectrum of the earth sciences which includes such areas of oceanology, volcanology, geology, and meteorology. All of these offer an almost unlimited opportunity.

3. How can I best prepare myself for a future vocation in science?

The best preparation is one which has a sound foundation in the basic principles underlying the

REFERENCE LIST /

A Memorandum to High School Students on Careers in the Field of Atomic Energy—U.S. Atomic Energy Commission, Educational Services Branch, Washington 25, D.C.

Opportunities in Atomic Energy—($1). Vocational Guidance Manuals, 1011 E. Tremont Ave., New York 60, N.Y.

Careers in Biological Sciences—Series No. 505 (35c)—B'nai B'rith Vocational Service, 1640 Rhode Island Ave., N.W., Washington 6, D.C.

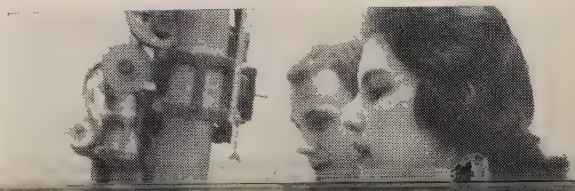
Chemistry as a Profession—No. 104, by J. L. Riebsomer ($1)—Belman Publishing Co., Cambridge 38, Mass.

Opportunities in Biochemistry—American Society of Biological Chemists, Inc. 2650 Wisconsin Ave., Washington 14, D.C.

Career Booklets Dealing with the Earth Sciences—American Geological Institute, 2101 Constitution Ave., N.W., Washington 25, D.C.

Occupational Briefs in Sciences and Engineering—Director of College Relations, Michigan College of Mining and Technology, Houghton, Mich.

Health Careers Guide Book; New Careers in the Health Sciences; Partners for Health—National Health Council, 1790 Broadway, New York 19, N.Y.

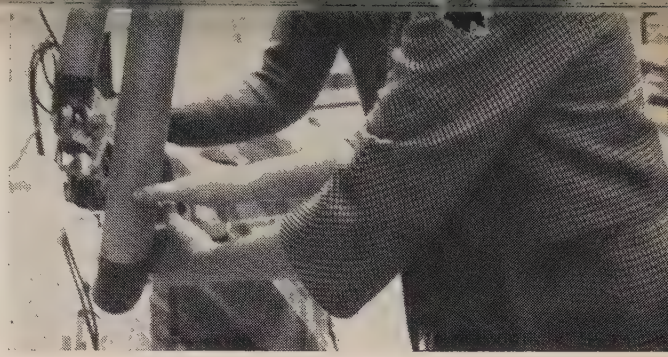


There is no doubt in my mind that a creator exists and that new findings in science merely make manifest the grandeur of the diety rather than the opposite.

4. In four years I will graduate from college: what areas of scientific endeavor will be left for me to enter?

The chances are that four years from now there will be more areas of science to enter than there are today. The demand for scientists and engineers increases at a rate which leaves a gap of approximately 20,000 a year between those needed and those available. In addition, as new discoveries are uncovered and new technologies developed new opportunities will be created.

One great area which at present has been barely studied for utilization is the practically unlimited possibilities of the ocean, its mineral and food possibilities and as a source of that essential requirement of all life—water. For example, you may have read of the desalting processes of sea water which will allow it to be used for sustaining human life. At present, all of these processes are far too expensive to compete with fresh water reservoirs now in use. However, at the rate the population is growing and the need for water increasing, the day is not far off when this problem will demand a real solution.



Physics as a Career—The American Institute of Physics, 335 E. 45th St., New York 17, N. Y.

Careers in Astronomy—Dearborn Observatory, Northwestern University, Evanston, Ill.

Education in the Sciences—Philadelphia College of Pharmacy and Science, Kingsessing and Woodland Aves., Philadelphia 4, Pa.

Should You Be a Scientist?—Career Information Service, New York Life Insurance Co., Box 51, Madison Square Station, New York 10, N. Y.

Sources of Information on Careers in the Scientific Fields—Manufacturing Chemists' Ass., Inc., 1825 Connecticut Ave., N.W., Washington 9, D.C.

All magazines relating to scientific fields, as **The Journal of Chemical Education; Science; Scientific American; Chemical Week; Chemical and Engineering News**, etc.

5. What are the big challenges facing scientists in the years immediately ahead of us?

Strange as it may seem, there are some challenges which I will consider of a somewhat minor nature although at first glance they will appear to be almost astronomical in proportion. I have already mentioned the problem of feeding the masses and the solution of an impending water shortage. Transportation, air pollution, and sewage disposal are also problems of immediate concern.

Three others are of ever-increasing importance to the scientist today. These are in order of increasing concern: finding the money for research, finding the personnel to conduct the research and develop findings, and communicating findings to others who can use them and build on them.

The first one, while large in the amount of money involved, is not likely to prove as formidable as the latter two. In the last 20 years science research has produced amazing results and funds from industry and government are more available now.

The problem of finding people to staff these research projects, to train the personnel to carry on and develop them is one of very serious import. Some authorities estimate that as many as six- required for every scientist

not that of merely talking with another person and being able to speak in his own tongue. There is also the difficulty of communicating all the findings one may have on a scientific problem to others who are working in the same related fields. The crisis that is developing is directly due to the volume of material which is being turned out and for which no man can even hope to do more than scan the titles of articles published.

Mr. Allen Kent of Western Reserve University, Cleveland, Ohio, states that ". . . in a single subject such as chemistry a chemist would find himself falling behind an estimated 850,000 pages for every solid year he would devote to reading." While there are some individuals who dispute the magnitude of this problem, there is no doubt that at the present time extensive research is going on in effort to find some way of making known to interested individuals the literature not only available to them in their field, but the articles and books they should be familiar with in order to keep abreast of their profession.

This brings also to mind an answer to question #2 that one new profession which is expanding rapidly is that of the science librarian. The science library has become a major tool in the hands of the research worker without which he would be hopelessly handi-

capped.

usually those individuals who have better than average ability, but who for one reason or another have not been able to complete more than two years of college. Possessed of aptitude for handling scientific equipment, they have proven invaluable in releasing the mind possessed of creative ability for other things than the mere tending of devices.

It should be mentioned that many of these technicians may have more than two years of college but still find themselves directing rather large groups of people in carrying on some of the more huge operations in industry today.

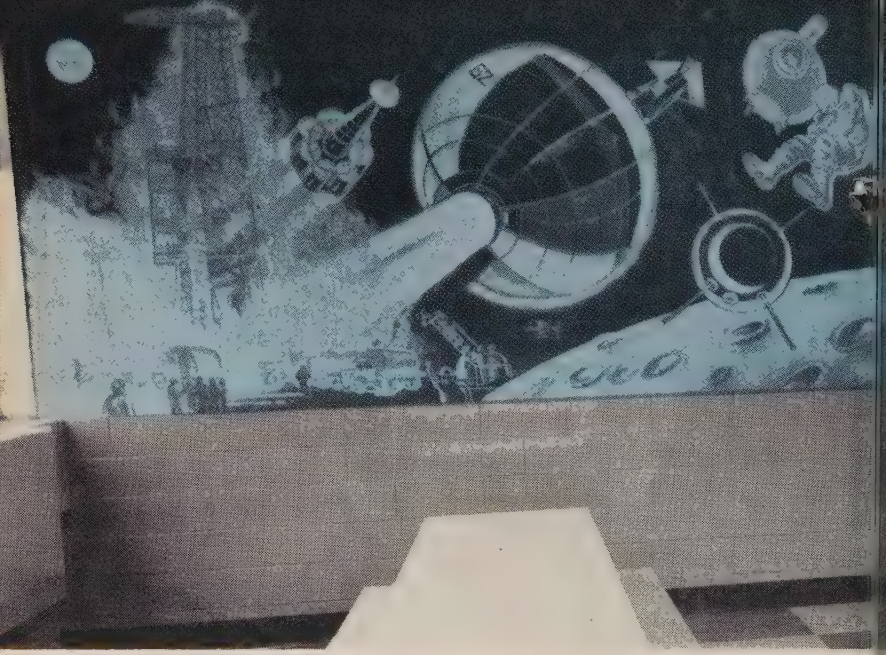
The last named problem, that of communication, is probably the one which is developing most rapidly. No apparent solution is yet in sight. The problem is

The final question of all these might well be:

How can I as a young person today prepare for the scientific challenges of tomorrow?

My answer, of course, would be to secure as broad and as sound an education as is possible, and develop a philosophy based on Christianity that will enable you to meet any challenge that life presents; secondly, to look forward to the future with confidence. It should be remembered that everything we know today and may discover tomorrow has been true since the beginning of time. It is only that God in his omniscient wisdom has seen fit for it to be revealed to us in accordance with our abilities.

—ROBERT W. NEATHERY



BOB and the SPACE MURAL / wh

Astronaut John H. Glenn, Jr., is in the Owen J. Roberts High School Pottstown, Pa. Flanking him are his friends and comrades in space, Al B. Shepard and Virgil I. Grissom.

They're there because 18-year-old senior, Robert Mason, created rep sentations of the three men on a space mural 40 feet long and eight f high.

Five months ago Robert became obsessed with the idea of a space mur His art teacher, Louis Gaston, had been given the "go-ahead" to paint mural on the cafeteria wall. He approached Bob with the project a asked him for a theme with this question. "What age are we living in

"Why . . . the space age, I guess," Bob replied. And from that mom on, the project was all his. Bob stole time from art class to work on project. Saturdays and after-school hours found him alone, silently wo ing on his giant picture of space. And during Christmas vacation wh other pupils were home with their families, Bob remained at the sch working.

Hundreds of preliminary sketches were made from newspapers, boo magazines and anything they could lay their hands on before the first str

sets out to do a job -- he does it!

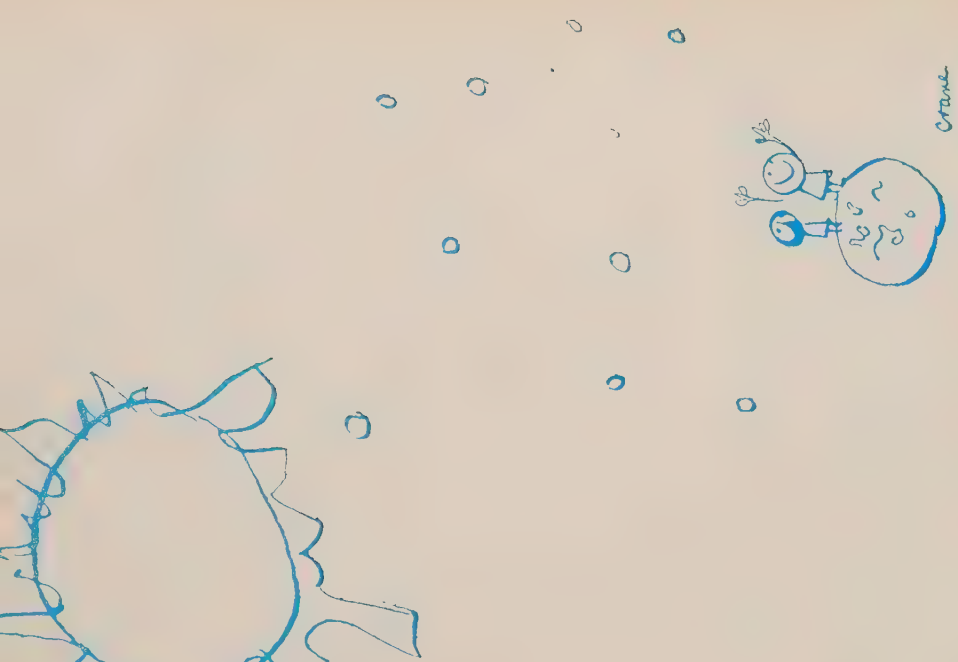
was ever applied to the wall. As the figures on the mural went up one by one, attention was always paid to balance and detail.

Strategically timed, the mural reached completion stage on the Saturday directly after Glenn's historic space flight—seven months earlier than the art teacher had thought possible. Bob's "simply overwhelming enthusiasm" did the trick.

At the extreme left of the mural is the launching pad at Cape Canaveral. Proceeding right are an air taxi with multiple rockets shuttling crew and material into space; a spheroid megaton bomb; a space capsule orbiting around the earth, while an astronaut descends. Below the astronaut is a satellite.

The first standing figure is Alan B. Shepard, the head in the space helmet is John H. Glenn, Jr., the other standing figure, Virgil Grissom. American conquest in space is symbolized by the eagle.

Next comes a space station in the form of a wheel. The final scene is a launching of twin rocket ships from the moon. The mural is divided into three scenes—launching and experimental flight; the astronauts; and the launching from the moon. ▼▼▼



Doesn't the thought of space thrill you?

may we quote you?

▶The probability of life origi
nating from accident is com
parable to the probability of
the unabridged dictionary re
sulting from an explosion in
a printing shop.

—Edwin Conklin

▶Change does not necessarily
assure progress, but progress
implacably requires change
. . . Education is essential to
change, for education create
both new wants and the abil
ity to satisfy them.

—Henry Steele Commager

▶Every new method develope
by the mind, although creat
ing a new power, also create
a new prison. We must b
able to control our methods s
that they do not enslave u

—Rev. Father R. J. Henl

▶I do not know what I ma
appear to the world; but t
myself I seem to have bee
only like a boy playing on th
seashore, and diverting myse
in now and then finding

A couple of beatniks were watching a jet streaking across the sky. As they watched, the plane caught fire and the pilot used his ejection seat to get clear.

"Wowsville!" yelled one. "Dig that crazy toaster!"

This Martian was a lover boy from out of this world. And he fell madly for a traffic light. The signal said "Go" and he dashed over to the light, threw his arms around it and hugged it rapturously. Suddenly, the signal switched to "Stop."

The Martian stormed off in disgust.

"If there's anything I can't stand," he muttered, "it's a tease!"

The two bored Martians walked down Main Street looking for something to do.

"Let's go to the show," suggested one, pointing to a marquee which announced a fantastic science-fiction double bill.

"What a drag!" the other protested. "I'm so bored with those documentaries."

When the flying saucer landed in the center of a large city, a reporter rushed to interview the 18-inch high man who emerged from it.

"Where," demanded the reporter, "are you from?"

"I'm sorry," replied the Martian. "Space does not permit me to answer."

The Martian just landed on earth when a teenager carrying a transistor radio on her shoulder walked by.

"Say, lady," said the Martian, "your baby will never learn to walk if you don't put him down."

—*Sir Isaac Newton*

▶I believe in an immortal soul —nothing disintegrates into nothingness — science has proven this. Life and soul therefore are immortal and can't disintegrate into nothingness.—*Wernher von Braun*

▶Science is growing — yet a world that has science needs, as never before, the inspiration that religion has to offer.
—*Arthur H. Compton*

CREDITS FOR THIS ISSUE

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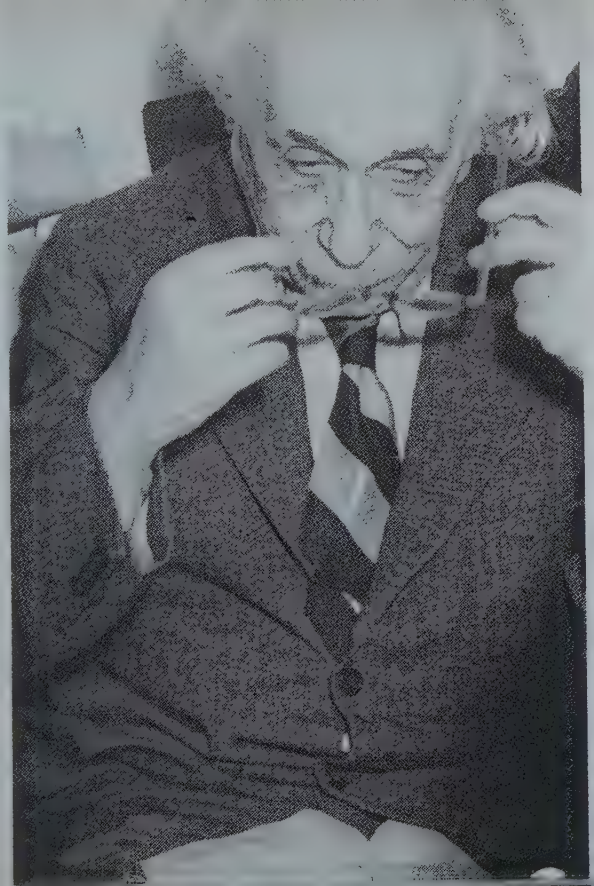


IF we had dropped into a classroom in Munich, Germany, shortly before the end of the 19th century, we could have found an angry teacher.

"Albert, you are dreaming again and you haven't done your work!" he said. And the schoolmaster gave a failing grade to Albert Einstein.

Fortunately, Albert's parents had faith in their son, and they sent him to live with an uncle so that he could attend another school. The uncle interested the young dreamer in mathematics. Here was a subject in which he could dream and propose theories and equations and still accomplish something.

Still not liking the discipline of school, he received only passing grades. But gradually the brilliance of his mind emerged, and he astonished the teachers by the problems he could solve.

At the age of 17, Albert Einstein entered a technical college in Zurich, Switzerland, intending to become a high school teacher of mathematics. But when he graduated in 1900, he could find no school opening for a Jewish teacher, so he took a position as

a clerk in the Swiss patent office at Berne instead.

This job gave Albert many free hours during which he sat with pad and pencil in hand and studied perplexing problems. In 1905, he received a Ph.D. degree from the University of Zurich and published a paper that stunned the scientific world. It was the Theory of Relativity.

You measure space by three yardsticks—its height, its width, and its depth. Dr. Einstein said, "Not so, for time is the fourth dimension."

A yardstick is a yard long only here on earth where it is moving with the speed of the earth. Put it on a star moving twice as fast and it will be shorter. A clock moving out through space at rapid speed would not run as a clock here on earth. Further, the speed of light, 186,000 miles an hour, is absolute. Propel a clock that fast and it won't move at all. Men moving in a space ship at a speed approaching that of light would never age a second or even be able to tell that time had elapsed, even though 1000 years passed before they returned to earth.

"Incredible!" said the scientists. "The University of Zurich should never give its doctoral degree to a 26-year-old upstart who wants to throw over the laws of mechanics described by Sir Isaac Newton."

But the more Einstein figured, the more his equations looked right. And he continued to publish findings that shook the scientific world.

"You can't slow light down and you can't speed it up," said Einstein. This explained the most puzzling phenomenon in space: Two twin stars (binary stars) circle about one another. The one will be coming toward us and the other moving away. But the light of the one coming toward us moves no faster despite the fact that the source is approaching and the light of the other no slower although its source is retreating.

If Einstein was right about light, it had mass and would bend in a strong gravitational field. Skeptical scientists watched closely during a total eclipse of the sun in 1919. The light from a star that ought to have been hidden by the sun's disc did curve around it and was seen! The light of other stars nearby was measurably distorted. Light did not go in a straight line. Bent about by the gravitational forces of the universe, a star was only where it looked to us to be.

Now the scientific community took Dr. Einstein very seriously, indeed. From his position as head of the Kaiser Wilhelm Institute of Physics, he proposed further developments of his Theory of Relativity leading to the most dramatic of all.

Energy and mass are simply manifestations of the same thing, he said, and their relationship can be explained in the simplest of all equations: $E = MC^2$. "E" was the energy you could expect from demolishing matter and turning it into energy. Take the

weight of the matter demolished and multiply it by its speed—Celerity Squared—that speed being the speed of light. Multiply 186,000 by 186,000 and then by the weight of the mass and you have the amount of energy you could expect in one second.

Multiply anything by a figure that big and the result is fantastic. That's how much energy you can get, said Dr. Einstein. A glass of water would drive an ocean liner across the sea a dozen times. A single lump of coal would heat a city all winter.

Yes, and two pounds of uranium on August 6, 1945, destroyed the entire city of Hiroshima, Japan, and killed over 100,000 people. The horror of an atomic bomb proved Dr. Einstein's equation correct.

Dr. Einstein appreciated the enormity of his discovery—that man now had the means to wipe himself off the earth completely. In his later years, he increasingly turned toward religion to find solace and hope.

"My religious feeling is a humble amazement at the order revealed in the small patch of reality to which our feeble intellect is equal," he wrote.

"I see a pattern," he cried out. "But my imagination cannot picture the maker of the pattern."

"I believe in intuition and inspiration," he said. "At times I feel certain I am right without knowing the reason. When the eclipse of 1919 confirmed my intuition about light I was not in the least surprised

Dr. Einstein was far from satisfied with his own equation as an answer to the mystery of the Cosmos. It explained that energy and mass were manifestations of the same thing. You could turn matter into energy and energy, presumably, could coalesce and form matter. It did not explain, however, where all this matter and energy came from.

Why did energy coalesce into atoms? Why do atoms join together to form molecules? Why do molecules join together into strings of thousands to form amino acids? Why do amino acids come together to form living cells? Why and how do cells gain the power to reproduce their own kind? Why do cells by the millions come together and form organs? And why do the organs constitute a marvelous mechanism that is man, that can think, and control his environment?

There was something in the equation that made a man that Dr. Einstein couldn't find. He couldn't find the beginning, the end, or the why. If the speed of light is absolute, then there couldn't be any power controlling the universe, he felt. It was running wild with its farthest galaxies at least two billion light years away. God would have to issue a command two billion years ago to reach anything in those galaxies and wait two billion years for an answer.

"The trouble with the human intellect," said Dr. Einstein "is this: How can it conceive of a God be-

knowledge is limited whereas imagination embraces the entire world!"

Dr. Einstein's imagination could conceive such fantastic things as a theory about speed varying the measurement of time, but he had to admit that he could not conceive of God.

He turned to morality as a form of religion, but it was a morality that was divorced from God.

"The ethical behavior of man is better based on sympathy, education, and social relationships and requires no support from religion," he held. "Man's plight would, indeed, be sad if he had to be kept in order through fear of punishment or hope of rewards after death."

Man did not stop doing evil, however, and as Dr. Einstein contemplated the horrible ends toward which his discoveries were being perverted, he thought more often about religion. But he could not bring himself to believe in God.

"For anyone who is possessed of a sense of the law of cause and effect in all that happens," he wrote, "the idea of a Supreme Being who interferes with the sequence of events in the world is absolutely impossible."

"A God who rewards and punishes is for him unthinkable because man acts in response to the pressures and circumstances to which he is subject and is little responsible for the results," he said.

Dr. Einstein couldn't find God. Before he died, he admitted to a friend who came to comfort him that he found belief in life after death incompatible with scientific theory.

"I see the clock," he said, "but I cannot conceive the clockmaker."

"The human mind," he sighed, "is incapable of conceiving of four dimensions."

Ironically, Dr. Einstein may have given us the answer to the mystery of Christian faith by his great equation. If matter is convertible to energy and energy to matter, then the "divine spark" of which our Christian theologians so often speak when they talk of the soul has reality and is not merely a production of man's religious thought. There really *can* be a spark at the center of life, a spark absolutely indestructible, even if the supporting structure of the body is blown apart, atom from atom, by the explosion of a nuclear bomb.

Dr. Einstein, the first man in history who could have come to a belief in the immortality of life and the omnipotence of God as an extension of a mathematical and scientific hypothesis, died without faith.

Perhaps someday man will come to understand on the basis of both science and religion that the missing factor in Dr. Einstein's equation is the symbol that would represent God. —GLENN D. EVERETT

MAN OF TOMORROW TODAY

Do I have what it takes . . . for tomorrow? Am I today the kind of person who can live in tomorrow . . . love in tomorrow . . . contribute to tomorrow? Will there be a place for *me* . . . tomorrow?

For every teenager, those are piercing questions. This "tomorrow" which will be your world, this dawning Age of the Atom will consist of the most incredible visions you can concoct. It'll be an age of travel to distant planets, of automatic homes and businesses, of coming to know and reproduce the ultimate chemistry of life, of creating new planets for an over-populated earth. Abundant energy, wrested from known and still unknown sources, will be the key.

These are facts that refuse to be denied or escaped. Our future wonder-world of scientific magic is going to be unbelievably changing and challenging. There will be little room for the ignorant or cowardly, the rigid or fearful. But there will be room for *you* . . . if you're willing to seize it.

First of all, you must be flexible enough to adjust to whatever may happen; to respond creatively to all manner of amazing change.

Secondly, you must be able to create change, as well as to meet it. This means that you will need

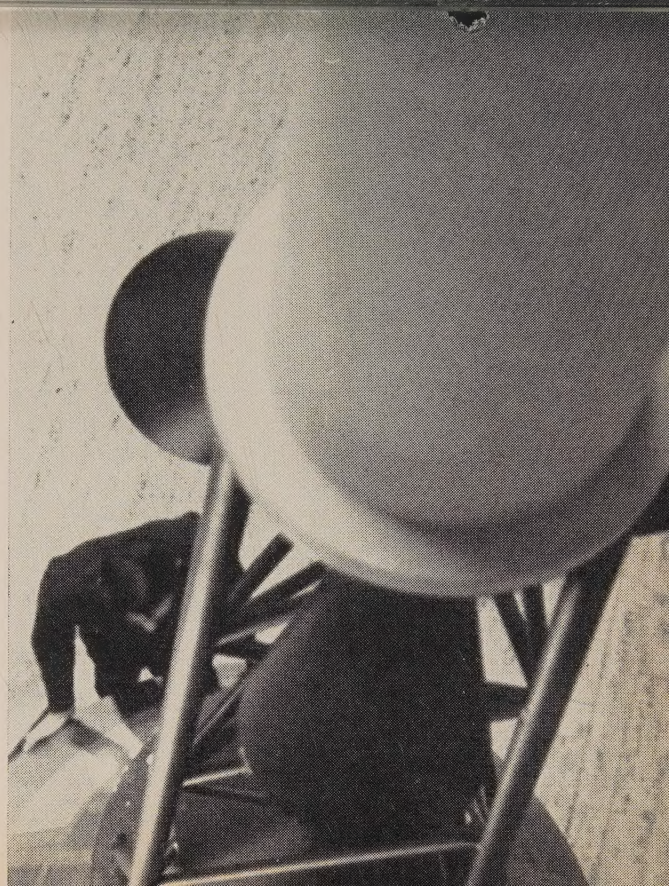
ability to do original work and an ability to cooperate in team efforts.

Increasing precision will become an essential requirement in an increasingly mechanized world. "Life will become more and more like a parachute jump—something that has to be done right the first time."

Tomorrow's man will also be living with increased leisure. You will need to strike a healthy balance between constructive hobbies and those pleasant moments when one just "stands and stares."

Learning to be at home in the world will be your challenge, too. This will involve knowing what powerful ideas, beliefs, and values motivate other people and gaining respect and tolerance for these concepts. It will mean tackling other languages with vigor and imagination. It will urge a study of history and geography from the point of view of other nations, instead of only from an America-centered approach. It will mean learning to accept the leadership, suggestions and plans of others as much as we demand that others accept ours.

Finding peaceable solutions to conflict will become increasingly urgent. You will be called to painful open-mindedness and continued study of the



sciences of human behavior and the problems of human relations. For you will be living with conflicts and problems that you cannot expect to solve in a short span of time. And you will be asked to face tragedy and disappointment without despair.

Applying the "scientific approach" to all areas of life will also be imperative. This approach requires "care in basing opinions on all the facts; reluctance to pass judgment without special knowledge or competence; avoidance of conclusions that express half-truths; and respect for human dignity."

Above all, tomorrow's man will have to be a whole man. Society will need specialists and technologically competent people. But it will also need men and women who understand and appreciate the whole of life. Lest we become a society of "splendid splinters" who can only do excellent work within narrow limits, we will need to saturate ourselves in all areas of learning.

But study alone does not make men whole. Whatever light scientific exploration of planet earth or of outer space can throw on our physical universe, it will not explain man to himself, or God to man.

In tomorrow's world of change and challenge, the Christian faith affirms that some things do remain [illegible] that you can still get a good grasp

SPIRIT OF TOMORROW TODAY

vealed to us in the person of Jesus Christ.

Of all the religions that have explained man to himself, Christianity is the most enmeshed in human history. It says without shame, "God works in history. In all our advancements and achievements and accomplishments, we have created nothing. We have only discovered what has already been created by a God who is thoroughly involved in conducting this enormous experiment that we call life."

A Christian can confront the unpredictable with the secure knowledge that history, both past and to come, has a vital extra dimension. Science and all other spheres of learning are the means by which we enlarge our fragmentary glimpses of God's plan and God's universe. But Christianity remains the fullest explanation of man's part in both. It gives you the tremendous historical fact that "God himself has penetrated into human life at man's own level" in his incarnation in Jesus Christ.

We do not know the ultimate purpose of God, but we can see in the working of time and space a vast plan whose roots are in eternity. Your best and most significant work as men of today and tomorrow is to ask to be allowed to participate in this plan and "to cooperate with God's infinite patience in making men whole." ▼▼▼

Ah, but a man's reach
should exceed his grasp,
Or what's a heaven for?
—Browning